

two days ago, I regret that I have not yet had an opportunity of fully testing their value. I may state, however, that I have tried the form of lever first described with complete success on the dead subject, and the two molars which I now exhibit, and which are of unusual size and strength, may be taken as an illustration of the power of the lever and of the success of the principle. I have to apologise for reading a paper before the Institute which is in so many respects imperfect, but I felt unwilling to delay the description of my instrument until after the vacation.

It sometimes happens that there are inventions of which we may fairly predicate success, without waiting for the results of experience ; I believe that this invention is one of these, and I cherish the hope that it may be the means both of greatly lessening the difficulties, that are frequently met with in the extraction of teeth, and of mitigating the sufferings of those who are compelled to submit themselves to this disagreeable operation.

[EXPLANATION OF PLATE.]

Table I. represents the instrument described above.

Since the reading of the paper, an important improvement has suggested itself to the Author in the construction of the instruments shown in Table I., and Table II. sufficiently explains the alterations made. In both Plates the figures are nearly half the real size.

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ART. XXI.—*Address of the President*, FERDINAND MUELLER, M.D., Ph.D., F.R.G. & L.S., &c., &c.

[Delivered to the Members of the Institute at the Inauguration of the Hall, January 23rd, 1860.]

GENTLEMEN—

IN the development of social as well as political institutions, events occur of significant importance from which the historian dates new epochs, or which the citizen points out as the inauguration of new eras. Such an event has on this occasion arisen to our Institute—that moment from which our existence as a scientific union may be regarded as perpetual, and its labors as consolidated. More fortunate than many other scientific associations, we have

here early found a home, in which for centuries to come the philosopher, no longer a wanderer, may meet the man of kindred turn of mind—an asylum where united work may strengthen the researches otherwise lost, perhaps, where example may arouse the unconscious talent to intellectual activity, and where the bond of science will connect all its disciples here in an harmonious and powerful communion. With the emotions of pride and pleasure which we experience in inaugurating on this occasion the new and hopeful phasis of our Institute, are mingled feelings of deep gratitude to those who, in a spirit of enlightened liberality, have endowed us with the means of raising this edifice. Calmly contemplating our new position, we feel that the advantages can hardly be over estimated which the possession of this building, even unfinished as it is, at once confers. May we not daily assemble here for the promotion of mutual knowledge by social intercourse? Shall we not henceforth find available all those literary contributions which, as tokens of adoption of brotherhood, we have received from other scientific unions, and find the sources of delightful information in those treasures of discoveries and theories, directing perhaps our thoughts in channels of research formerly untraversed? Whilst thus all the newest achievements of science are early brought within our reach, the horizon of observation with increasing clearness will extend around us, and the grain, sown by a stranger's hand, bear here perhaps its harvest. Great will be the impetus now given to our work; greater still will be the gain which we may now prognosticate for the remoter future of the Institute. Our imagination may carry us onward to a distant time, when all assembled with us now shall long have ceased to exist on earth; when other generations have extended this building to one of the more noble of the grandest southern city; when a long series of discoveries, important in their bearings on Australia's prosperity, shall have been first enunciated at this forum; when those scanty shelves of books shall have expanded to a library, bearing testimony to the literary work in which this Institute shared; when a glance at the busts of the wisest of all ages, raised here in veneration of by-gone greatness, shall to new efforts excite the wearied mind; when a gallery of works of art shall elevate the thoughts to sublime æsthetics; and when collections from every region of the globe shall to the searching eye unfold that harmony eternal which Isis' works pervade. And then, perhaps (if we may be allowed to indulge in this train

of thought)—then, perhaps, the memory of this day and our early struggles may not have fully sunk into oblivion, and future generations, whilst celebrating their scientific triumphs on this spot, and measuring their achievements by the standard of our time, will gently judge the labors of this epoch. And is not all which we hopefully foresee commensurate with the already gigantic progress of these flourishing youthful colonies? Let us cast our eyes on the vivid picture which, as the beginning of future decorations of these walls, a friend equally talented and generous has placed before us. We recognise the greatest of Britain's exploring navigators, not bent on warfare's glory, but on the triumphs of more enduring conquests, boldly directing his vessels into waters unfurrowed by a keel before. His eagle eyes in inexpressible delight are glancing, like Columbus's, along the verdant shores of a new continent—a panorama of nature never before beheld by any European's sight, is there expanding before him. His phantasy perceives cities arising on the virgin ground, sees millions crowded in activity where then the solitude of the wilderness prevailed, sees browsing herds and flocks on the then trackless pastures—the “harvest treasures” clothing hill and dale, sees anchoring the fleets of commerce in the peaceful waters of that romantic bay. The realisation of what the most vivid imagination brought before the vision of the immortal Cook, has been the work of much less than a century. This presage of Australia's future, we may well imagine, was the greatest reward which crowned his arduous labors—the richest jewel he took with him from these shores. If since that period the gigantic strides made by civilisation have verified the highest expectations of a now bygone time, what marvels may not yet be revealed by the second century of Australia's colonisation? No longer shall we then remain almost exiled from the northern countries from whence our population sprang; no longer shall we then regard with mingled feelings of hope and dread the blanks of our geographic charts; no longer shall the tired traveller then stray waterless through inhospitable wastes; no longer shall, for many thousand miles, the coast of this great continent remain unoccupied by homesteads and settlements; no longer tracts of immense extent remain devoid of the harvest grain. Then the electric wire shall have established our contact with all nations, and shall uphold the cordial affections of scattered friends and families. And then, we trust, the elements of life poured forth by numerous artesian

fountains shall irrigate the desert, whilst a vegetation nutritious and luxuriant, disseminated far and wide, shall have attracted countless flocks and herds. An almost endless network on the chart shall have interlaced the tracks of those who shared in the work of adding to the world's dominions; then the wrecked mariner shall find a coast on which no more the fury of the savage reigns, and monumental cairns will signify then to the wanderer the spots where the never-returning pioneers of civilisation fell the victims of their heroism. An improved system of agriculture shall afford bread to millions then, where now only thousands exist; forests of varied useful trees shall have been transplanted to our shores; the introduction from Flora's and from Fauna's treasures, commenced in our days, supported by our anxious exertions on this spot, may then enliven a much more varied industry; the trout and salmon shall traverse our streams, and game in manifold variety shall roam through the forest, in which the feathered tribes of many zones shall, in their melodies, have added to its primeval charms. Then the steam-engine shall penetrate far through the continent, and from the point at which its whirling velocity must cease, the ship of the desert shall in safety accomplish the remaining distances from shore to shore, whilst those floating towns, called forth by the enlarged conception of a Brunel, shall bend their steady course across the ocean. But not alone in promoting the material welfare of our adopted country shall this Institute have borne its honorable share. A higher ideal of man's destination in the world shall then have shown its influence. Man elevated more and more by science shall have abandoned that egotism by which he but too often retrogrades. No longer shall be lost that skill and that amount of physical and mental energy which now are wasted in the field of war. It shall, we trust, have found a higher task in realising grand national projects, dictated by the requirements of a coming time—fulfilling what, perhaps, in past ages, engaged the contemplation of the ancients.

In countries stretching through a climatic zone almost alike to ours, arose the genius of poetry, of arts, and of philosophy; from thence we trace those masterpieces which, through thousands of years to our time, have been admired as the types of plastic art, of rhetorical composition, and of poetical sublimity; from thence it was that Orpheus' lyre sounded in passion-subduing, ever lovely harmony. Was it the influence of an eternal spring

under a milder sky, or was it the command of the wealth of a rising country, or was it the lofty thoughts or the proud feeling of the southern ancients to stand pre-eminent in power and civilisation, which called forth those early developments of the human mind? Was that the source from which that antique grandeur sprang—that touching language of the poet, recited to the present day—that irresistible power which, in the words of the orator and philosopher, have lasted to our period? And may we not reflect on this, when we see the sons of the North raising the standard of high intelligence in a country where also the sunny, transparent sky, the never fading-foilage, and nature's virgin beauty, leave on the mind those deep impressions which render it susceptible to the exaltations of a classic age, and which, to imitation of grandeur, excite the rising genius? The field of science is unbounded, and it is fruitful everywhere. Still, at no distant period, we shall be envied for having lived in the era of Australian discoveries, for having enjoyed the opportunity of applying the sum of knowledge accumulated by lengthened experiments, and by the toilsome studies of the past, at once to our immediate advantage; and to have brought, first of all, to bear, that sum of knowledge in a country which, although the oldest in the scale of the Creation, remained the latest in the development of human faculties and enterprise. The veil of morning dew, which involved Australia since the creation day, has been dispersed as yet but partially by the rays of the dawning civilisation. But its beams shall have burst forth soon everywhere in brilliant light. Where is a country to be found in which such novelty of nature, inexhaustible resources, ample space for occupation, and a salubrious clime are equally inviting industry to settled happy homes, activity to successful enterprises, and philosophy to the most promising research? A universal system of the types of vegetable and animal life should—as the result of our inquiries—initiate with ease the student into nature's wonderful arcana. Ascending from its lowest forms, which only the microscope reveals, through divisions of higher development of organic life, there is no branch devoid of novelty, and more than one not even drawn as yet within the circle of elucidation. The isothermal lines, as yet unfixed, should circumscribe the zones of vegetation; the curves of terrestrial magnetism be patiently traced, and the climatic annals be completed. From fossil vestiges, buried in almost unknown rocks, from remnants of organic

structure concealed in our coal, are to be reconstructed yet the forms of vegetation of ages anterior to human life—from these also are to be re-established in their outlines the animals of now long gone-by times—there are to be re-organised by anatomical comparison, triumphantly perhaps from a single bone, the colossal creatures of a former world. The youth, who has learnt here by applied science to measure the altitude of stars, the courses of the planets and their satellites, may plunge, depending on the guidance of his faithful instruments, at once from settled homes into the field of exploration, and may reap the lasting laurels of his learning on his native soil. How glorious, then, if ere long our meeting shall narrate all the successes and achievements of the explorers sent from hence; if the volumes of the Institute shall, first of all, unfold the maps of mountain chains, of watercourses, of pasture-tracts, where now the eye is wandering over the vacant chart; or if the vivid sketches of the artist more eloquently still shall bring before our view the dreary desert, the wild romantic glens, and the scenes of nomadic life! That as yet the pages of our volumes do not embrace the records of fresh geographic research, initiated here, is much deplored by all of us. Prudence demands, however, that for executing the extensive plan sketched out for the Victorian Expedition, the aid of Camels and Dromedaries should be employed. Ere long, however, we are confident, the expedition thus strengthened will be organised. All augurs thus far well. Important geographical discoveries, as well in the north-western interior of South Australia as in the regions stretching north-east of Sharks' Bay, have recently not only diminished the distances between the points explored, but have also disclosed, unexpectedly, such features of the Australian interior as in all likelihood will render the work of the Victorian explorers much less hazardous and more hopeful than before. By the additional liberal support of Government, the means shall be afforded to the travellers of extending their operations over a space of time probably sufficient for connecting all the main points of former surveys of the interior. The objects of scientific organization are manifold—one of high interest is to understand our time and to respond to its call. Living in an age no longer content with advancing isolated doctrines, we have been guided by a brilliant star (rising in incomparable lustre on the firmament of science) to those generalisations by which are brought in universal contact the distant departments of knowledge, whilst in their grand reactions

they celebrate the highest triumph of mental power. This is the ideal which, in faint outlines, appears in the morning rays of a promising future. And as the leader to this ideal, stands before us Humboldt—the Aristotle of this century. He stands before us as the type of sterling nobility, great as a man through his philanthropic modesty, a genius of universal knowledge, the brightest ornament and highest ruler of the world of science. With the light of this leading star we are entering this new promising epoch. The present age is also characterised by a much more complete ascendancy, which science is gaining over almost every branch of industry, of which she has become the benefactor and the guardian. Does not, therefore, a sphere of unlimited utility lie here before us?—here, where the field for active life is so extensive, and where the laborers of science are so few? Our means are great; may we wisely use them! And may the value of our work be measured by its influence on the welfare of this country! Under such anticipations we accept this hall, entrusted to us as a possession in which science should reap its never-failing harvest. Let us leave it as a heritage to our successors, conscious of having deserved the gift—of having responded to the confidence by which the rulers of this country have patronised all our designs. May the tempest of discord never re-echo from these walls! may every word resounding here be one expressive of friendly feelings, of philosophic thoughts, of elevated inspiration for all that is noble; and, in aiming to fulfil the destiny for which we here are called, may our symbols be “*Concord and Progress!*”